

Patent Claims

1. Process for laser beam welding, with pre- and/or post-warming in the area of the weld seam,
 - wherein welding and thermal treatment are carried out by means of a single laser beam with substantially constant output,thereby characterized,
 - that welding and thermal treatment are separated timewise from each other in such a manner that the temperature reduction of the respective illuminated surface from the point in time of the first illumination to the point of the subsequent illumination is less than 50%, and
 - that during the thermal treatment
 - the laser energy input, based on the illuminated surface area and time, is adjusted by defocusing the laser beam and/or increasing the rate of advance in such a manner that the side of the existing or to-be-formed weld seam opposite to the laser beam is warmed by at least 10°C.
2. Process according to Claim 1, thereby characterized that the laser beam is guided on the surface via a scanner device.
3. Process according to one of the preceding claims, thereby characterized, that the laser beam during thermal treatment is defocused in such a manner that its focus is between 2 and 50 mm, preferably approximately 20 mm, from the surface of the laser beam facing side of the plate.

4. Process according to one of the preceding claims, thereby characterized, that during the thermal treatment the laser beam is guided in such a manner that a transverse, preferably circular, movement component is superimposed over its main direction of advance (so-called beam spinning).
5. Process according to one of the preceding claims, thereby characterized, that welding and warming occur alternatingly in the manner of a step seam.